

Astragalus pendulipodus (Fabaceae), a new species from Iran

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Astragalus pendulipodus Ranjbar & Karamian *sp. nova* (Fabaceae) is described from Iran and illustrated, and placed in *Astragalus* sect. *Ammodendron*. It is confined to the western part of Iran (Prov. Zanjan) and known from two localities. Some characters in *A. pendulipodus* suggest that it is closely related to *A. ovalis*.

Key words: *Astragalus* sect. *Ammodendron*, Fabaceae, taxonomy

The largest genus of vascular plants, *Astragalus* (Fabaceae) consists of 2500–3000 species (Lock & Simpson 1991: pp. 96–102) classified into more than 250 sections. It is distributed mainly in arid and semiarid mountainous regions of the northern hemisphere and South America. The genus is especially diverse in southwest Asia, with ca. 1000–1500 species. Represented by more than 800 species, *Astragalus* is the largest genus also in Iran (Maassoumi 1998).

There are some old monographs and books (Bunge 1868, Boissier 1872) and some local treatments (Gontcharov *et al.* 1946, Rechinger *et al.* 1961, Chamberlain & Matthews 1969) of Asian *Astragalus*, which are suitable and helpful in identifying the Iranian species. During field investigations in the mountains of Iran, we found some peculiar populations of *Astragalus* sect. *Ammodendron* distributed on the mountains around Zanjan. A closer study of living material and herbarium specimens suggested that these specimens were similar to *A. podolobus* and *A. ovalis*, but there were also several morphological differences.

Section *Ammodendron*, with bifurcating trichomes, comprises nearly 61 species (Yakovlev *et al.* 1996: pp. 105–110, Maassoumi 1998, Podlech & Zarre 2003). Clearly a comprehensive revision of the section requires much further work, also including species outside of Iran.

This study is mainly based on herbarium material. Several sheets were examined for each species, received on loan from the following herbaria: Herbarium of Ferdousi University of Mashhad (FUMH) and Esfahan, Herbarium Research Center of Natural Resources and Animal Affairs of Mashhad, Esfahan, Shiraz, Kerman and Zahedan. Moreover, during several excursions in Iran, some of the species were studied in the field by us.

***Astragalus pendulipodus* Ranjbar & Karamian, *sp. nova* (Figs. 1 and 2)**

Differt ab A. podolobi *vexillo* 12–13 × 3–4 mm (*nec* 17–20 × 6–9 mm), *legumen* *stipte* 4–7 mm (*nec* 2–3.5 mm), *foliola* 5–7 (*nec* 1–2)



Fig. 1. *Astragalus pendulipodus* (from holotype). — A: Habit (with fruit). — B: Stipules. — C: Leaflets. — D: Standard. — E: Calyx. — F: Wings. — G: Keel. — H: Androecium. — I: Gynoecium. — J: Pod.

paria, stipulae chartaceae et liberae (nec membranaceae et connatae), petiolo 2 cm longo (nec brevipetiole vel sessile).

HOLOTYPE: Iran. E Iran, Prov. Zanjan, between Zanjan and Bijar, 60 km after Bijar, Halab, 1700 m, 9.VI.2002 Ranjbar & Karamian 5087 (Bu-Ali-Sina University Herbarium (BASUH); isotype herb. Ranjbar). — PARATYPE: Iran. Zanjan to Mianeh, 50 km after Zanjan, 9.VI.2002 Ranjbar & Karamian 5049 (BASUH).

Plant 30–45 cm tall, with appressed, symmetrically to asymmetrically bifurcate hairs. Caudex ca. 10 mm in diameter, divided, densely covered with old rachis. Stipules brownish, 2–3 × 1.5–2 mm, triangular narrowly triangular, longer all adnate to petiole for 1.5–2 mm, sparsely hairy. Leaves 7–10 cm long; petiole 1.5–2 cm long, like rachis densely covered with appressed to asymmetrically bifurcate white hairs (up to 1.2

mm). Leaflets in 5–7 pairs, narrowly elliptic to oblong-elliptic, 10–12 × 2–4 mm, acute at apex, sparsely to nearly densely pilose on upper side, densely pilose on lower side. Peduncle 6.5–8 cm long, erect to ascending, 1–2 mm thick, densely covered with appressed, white, bifurcate hairs. Raceme rather densely 20–22-flowered, becoming elongated in fruit, up to 30 cm long. Bracts 1.5–2.5 mm long, narrowly triangular to linear-lanceolate, whitish to brownish-membranous, glabrous or with sparse, mixed white and black hairs. Pedicels 1.5–2 mm long, with black and white hairs; flowers erect to spreading. Calyx 5–6 mm long, tubular, fairly densely covered with short, black and white, appressed, symmetrically to asymmetrically bifurcate hairs; teeth narrowly triangular to subulate, 0.5–1 mm long. Corolla blue, in dry state purplish-violet. Standard 12–13 mm long, blade 3–4 mm wide, oblong-elliptic, below middle slightly constricted, angularly narrowed into a short cuneate claw, at apex widely rounded. Wings 9–10 mm long; blades oblong, rounded at apex, ca. 4–5 × 2 mm, auricle indistinct. Keel 9–10 mm long; blades obliquely narrowly oblong-obovate, with straight lower edge and distinctly concave upper edge, acutish at apex, 8–9 × 3 mm; auricle very short, claw 8–10 mm long. Staminal tube straightly cut. Ovary with a stipe ca. 2 mm long, with white hairs; style glabrous. Pods pendulous, oblong-elliptic, with a slender stipe 4–7 mm long, narrowly linear, straight, 12–18 mm long, 2.5–4 mm thick, at apex abruptly narrowed into an acuminate and recurved beak, 4–5 mm long, valves greenish-yellow, densely covered with villous and white hairs 0.5–1.5 mm long.

Almost all members of *Astragalus* sect. *Ammodendron* represent the Irano-Turanian phytogeographical element. The endemic *Astragalus pendulipodus* was seen in the field by the authors and is known only from two specimens from the

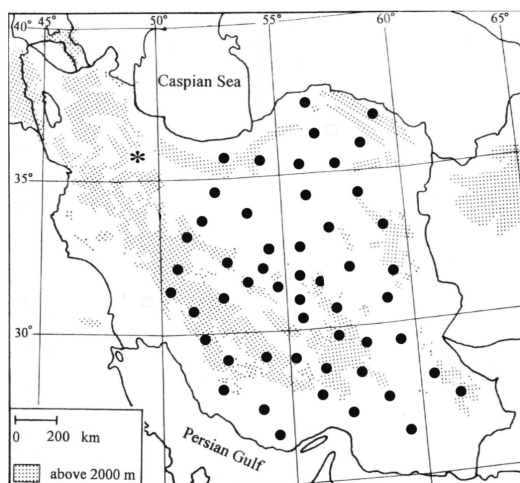


Fig. 2. Distribution of the species of *Astragalus* sect. *Ammodendron* in Iran. Based on herbarium material in TARI. Star: *A. pendulipodus*.

province of Zanzan. It was collected from a dry steppe and stony clay zone (Fig. 2). *Astragalus pendulipodus* resembles *A. podolobus*, especially due to similar type of indumentum, stipe and shape of pods. Table 1 provides a morphological comparison of the two species and further includes *A. ovalis*, with which *A. pendulipodus* may also be confused.

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Table 1. Morphological differences of *Astragalus pendulipodus*, *A. podolobus* and *A. ovalis*.

Species	<i>A. podolobus</i>	<i>A. pendulipodus</i>	<i>A. ovalis</i>
Pod	stipitate	stipitate	sessile
Stipe length	2–3.5 mm	4–7 mm	0 mm
Leaflet pair number	1–2 pairs	5–7 pairs	4–8 pairs
Standard length	17–20 mm	12–13 mm	14–17 mm
Stipule texture	membranous	chartaceous	membranous
Stipule connation	connate	free	connate

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